King County's SciFYI
King County
Department of Natural Resources and Parks
Water and Land Resources Division
A digest of current natural science issues in King County
Article 0908-1 August 2009 - SPECIAL EDITION

SPECIAL EDITION:
Summer Youth Employment Program Student Report

King County's Department of Natural Resources and Parks and King County's Department of Community and Human Services in partnership with Seattle Central Community College conducted a six-week Environmental Sciences course culminating with this special "student" edition of the SciFYI Newsletter.

Class lectures raised awareness of environmental issues.

Funding for this summer program was provided by the American Reinvestment and Recovery Act, in partnership with the WorkForce Development Council of Seattle-King County and King County Work Training Program. The 2009 program assisted and provided over 500 youth with job training opportunities in various fields and with opportunities to learn.

The Environmental Sciences class assisted about twenty students with both work and school credit that would:

- meet the needs of out-of-school youth;
- provide essential work readiness training
- expose youth to concepts of environmental justice and stewardship
- increase their educational attainment; and/or
- provide incentives to stay and succeed in school.

The Science and Technical Support Section along with King County Parks and Water and Land divisions staff integrated class room and field experiences into a program that provided insights into forest regeneration, invasive species, climate change, water resource management and ecological value.

The articles were written by the students. King County staff assisted them with editing, photos, and design. However, the thoughts and article content are that of the students' experience.

For more information on King County's Summer Youth Employment Program please contact:

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http://your.kingcounty.gov/DCHS/CSD/worktraining/YouthSource.htm

Youth received instruction to work safely out in the field.

About King County's Sci FYI

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Nuthin' But Weeds

by Taylor Lee and Anthony Olachea

King County staff showed the class how lake algae blooms occur, fed by runoff containing fertilizers and animal waste.

Class students removed invasive weeds choking out native plantings around Cottage Lake.

Lakes are very valuable to humans and animals. People go to lakes to swim, keep cool during a hot summer, boat around or even fish. When the lake gets polluted, then people, fish and wildlife get sick. Some could even die.

As part of our summer class in Environmental Science, we went to Cottage Lake in Woodinville to see how our King County Department of Natural Resources and Parks is trying to protect that particular lake.

What Sally Abella and Beth Cullen, staff scientists from King County showed us was a project where they planted trees and shrubs around the lake. The reason for this is to prevent water with fertilizers or animal waste from lawns around the lake to flow into the lake water. The roots of these native trees and plants help filter out the chemicals and nutrients from lawn runoff so that the remaining water that flow into the lake is clean.

For three days this summer, we removed weeds that were growing alongside the planted native shrubs and trees. It is important to take out these weeds, which are considered invasive plants, because they are non-native, and therefore, compete against the native plants for space, water and sun. If we did not take out these invasive plants, they could take over the space and keep the native plants from growing.

We learned a lot from this field study, including how a lake can become nutrient rich when fed by runoff that has fertilizers containing phosphorus could result in a toxic bloom of blue-green algae. We were taught that these blue-green algae, known scientifically as cyanobacteria are similar to algae, but they are not true algae.

Cyanobacteria are simple life forms closely related to bacteria. When lakes or ponds become nutrient-rich they could support a rapid growth of cyanobacteria which is know as a toxic bloom. When this happens, a "clear" body of water can become very cloudy with a green, blue-green or reddish-brown growth within just a few days.

Sometimes cyanobacteria blooms may produce toxins that are potentially lethal to animals, including humans. The danger is when a lake does not show signs that the toxins are in the water. When the algae dies and these toxins are released, the water gets back to being clear and seems very clean. In fact, if water containing these algae is drunk, it can cause a lot of health problems.

For more information on invasive and noxious weeds visit www.kingcounty.gov/weeds.

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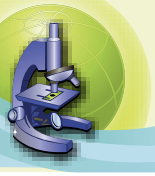

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WATER

Compiled poems written by YouthSource Natural Resource Group, August 2009 - inspired by the Jay-Z Water for Life DVD

WATER IS
The seed of life
Demanded beyond all wants
Essential for life
Smooth like Jazz
Like the heart- you need it to live
Something to share with others
Peaceful
H2O
The source of new beginnings
The mother of land
The mother of life
The world's beating heart
Our life or our death
Beautiful, especially the waves and tides
The world's wealth

IT GIVES
Forgiveness
Hope to all who have it
Energy
Birth to everything we know of earth
Life to everything
Happiness
Minerals
Strength
Peace and harmony to our lives
Birth to new life

IT UNDERSTANDS
Its important role in the world
That in order to be free you must give as much as you take
Our need to bond as one
The meaning of the Future
It understands us even if we can't do the same
What is truly precious
Every ones needs
Which way to go
It's purpose on earth's land

IT SOUNDS LIKE
The rushing flow of goodness
Rain fall
The beach
A ripple of laughter
The rush of the sea
The rush of a river
A raging power
A roar from a lion as it falls from the tallest cliff; the tiny tapping of a kitten's feet across the kitchen floor
Raindrops
Ocean waves
Refreshing Peace
The falling of rain to the destruction of thunder
The shrill of a mother's prayer

IT NEEDS
No contamination
Our help to survive
To be cleaned
People to drink it
Our protection
To be filtered
Selfless thoughts of care
Respect

(Continued)

WATER
(Continued)

IT WILL NEVER
Hold you the same way twice
Kill
Be sold
Be forgotten
Be replaceable
Betray us
Last forever- if we keep the pace we're at
Run away

IT BRINGS
Hope to new life
Silence
Pools for fun
Health and healing
It brings us back to reality
Nourishment to animals and plants
Life into the world
Purity into madness
Forgiveness to the world

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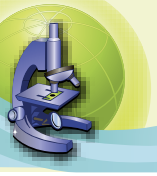

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Rejuvenation

By: Ciera Boyd & Duke Nguyen

We worked at two project locations to rejuvenate and improve their environmental conditions. One project site was called Cemetery Pond and the other the Carlin Levee.

The Cemetery Pond project is located in King County's May Valley area. We were there to remove the trash and weeds from around the Cemetery Pond bog, much of which had been thrown there carelessly.

Students filling buckets with mulch to place around plants.

The Carlin Levee project site is located between the Raging River and the Preston Fall City Road. What was interesting about this area is the levee that was built in 1963, when people thought that a straight moving river was "healthier" for the environment, and to keep it from flooding housing areas, was removed and set back to enlarge the flood plain. This was done to help create more natural river processes in the Raging River.

One of our discoveries was that a straight moving river could be harmful to the environment and to the creatures that live in it and depend on it. Straightening the river had caused the river to over flow to one side only, making it harder for plants on the other side to gain water and making it more difficult for the animals that live in the water, like salmon, to survive in the now fast-moving waters.

On both projects, we had to put mulch around the native plants. The mulching was difficult in that we had to carry a bucket of mulch up and down a hill for every plant.

Mulch is the byproduct of organic waste from plants and weeds and bark that has been ground down. We pulled the grass and weeds from the surrounding area around the plant, then placed the mulch in a circle around the plant with a one-inch open space between the plant and the mulch for the plant to have room to grow.

At the Cemetery Pond bog site we removed trash and invasive plants—such as blackberry and the common reed. We were able to make more room to plant native trees and then mulch around them to keep weeds from growing back around them and to

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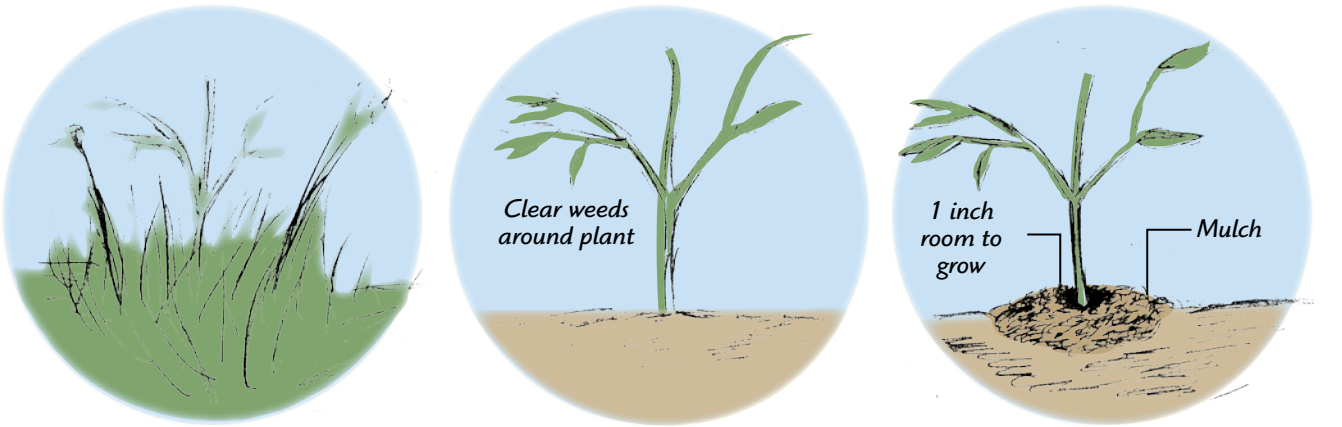

Illustrations by Ciera Boyd & Duke Nguyen

keep moisture from leaving the plants. With all of this we will hopefully improve the overall health of the Cemetery Pond bog.

In both locations we worked with Allison Bafallo a King County intern forester. We were able to mulch about 20 or 30 plants at both sites, and remove most of the invasive blackberry vines.

While we were at the Carlin Levee on our lunch break, we decided to sit by the river and cool our feet while we ate. After a while we began to notice what, at first, looked like tiny pieces of bark moving around in the water. Upon closer inspection we noticed that the pieces of bark were actually bugs that were living in the water, and had taken some bark and incorporated it into their protective shell.

Immediately, we remembered something that we had heard at a presentation by staff of King County's Department of Natural Resources and Parks panel discussions. They had mentioned that there was a type of bug that only lived in the highest quality of water, and the bug would take things from the bottom of the river, pond, lake, etc. and use it to create a shell for itself.

Does this mean that the Snoqualmie River water is drinkable?

Perhaps.

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Out in the "Cuts"

By Cindy Zecena and Julia Salazar

We went to Ring Hill Forest to help protect the growth of young Cedar and Douglas fir trees. We arrived at Ring Hill Forest before noon. The forester told us where we needed to go to pull weeds. Most of the weeds, called Scotch Broom, grew along the road because their seeds came here stuck on truck wheels that hauled out felled trees.

We learned that Scotch Broom is considered an invasive plant and were able to outgrow the native plants. If we did not pull out the Scotch Broom, the small native trees would not be able to grow. So, we had to take out a whole bunch of these weeds. It was a difficult job—a very difficult job!

Bill Loeber, the King County forester who was with us at Ring Hill Forest, gave us more information about forests at a panel presentation he did at his office in downtown Seattle. He talked about the importance of nature's cycles to keep the forest alive and healthy. He talked about the hydrological, nutrient and energy cycles.

For example, when Forests are healthy, they are like sponges that soak up or absorb rainwater and snowmelt. It is important that they slowly filter and release the water slowly over time to streams, rivers, lakes, and other water sources providing the ecology with needed nutrients.

We also learned that forests are never permanent and will always go through a cycle, no matter what. Because all living things in the forest eventually die, the soil is made up of the excess carbon that comes from these dead things. That is also why the top soil of the forest is the richest in nutrients.

King County forester, Bill Loeber, instructed class what to do and how to do it safely.

Forest fires can be caused by nature, through lightning strikes or people. Forest fires are called a "disturbance." Soon after a disturbance, the forest is totally without life because all has been burnt.

We learned about "Succession" how forests evolve. Succession begins with what is called the "pioneers". These pioneer plants are usually grasses. They grow thick and long and are soon followed by shrubs through pollination, they spread about in the forest.

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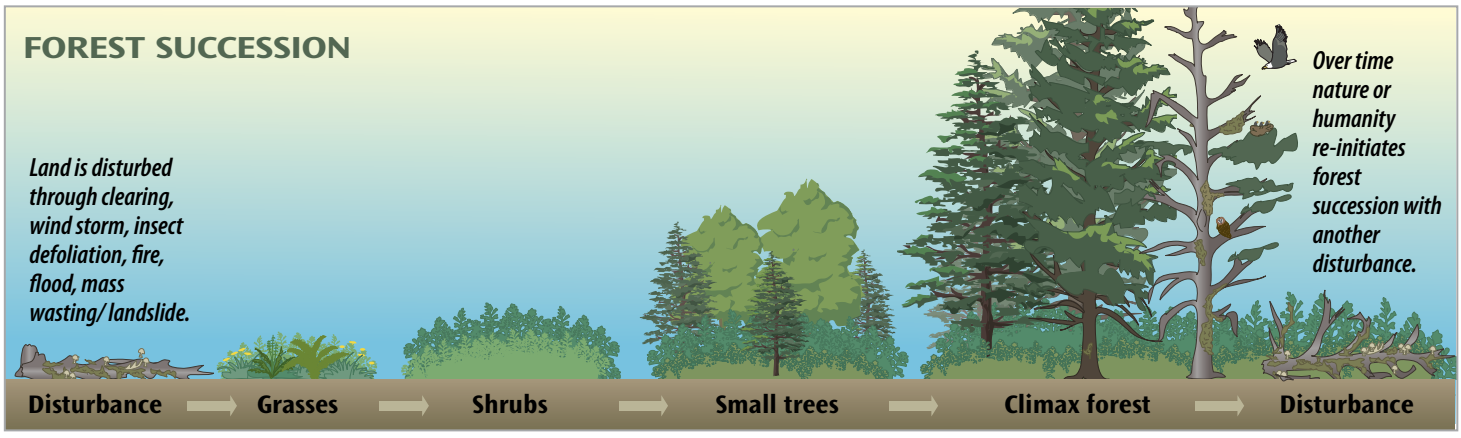

Then small trees begin to grow until they are finally tall and old. And this is why a full-blown forest with tall, large trees is called "old growth forest." This is termed the climax of the cycle until another disturbance occurs.

Finally, foresters like Loeber makes sure that none of the practices and disturbances made by man are to be repeated. He helps educate people about managing forest growth through a process of replanting. Further, he makes it clear that cutting many trees is a disturbance that will hurt the forest.

In our summer course, we not only feel like we learned something, we were actually doing something about what we learned. Our experience at Ring Hill Forest is both fulfilling and satisfying, especially knowing that we as students are taking part in helping Mother Earth regain her health.

Just as British scientist James Lovelock said, "We need to study Earth as doctors diagnose and treat patients, not as an isolated leg or ear but as a whole living being."

We need to treat the world as a whole and not just look at the problems at the local level.

For more information of King County forestry visit
www.kingcounty.gov/environment/wlr/forestryprogram.aspx

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The Donations of Jay-Z

Editorial by Ean Goddard

There are places in the world where people are less fortunate than us. Most of us here in the United States have running water. We have water in our homes, in stores, in businesses, at parks and the list goes on and on …….. and we tend to waste lots of water every day.

In some parts of Africa for example, people have to walk a very long distance just to get some water that may not even be clean at all.

In class one day, we saw a 2006 DVD story about how Jay-Z, a popular American rap artist, saw that there were people who were way less fortunate than us. He decided to appeal to the United Nations to do something about it.

Jay-Z went to Africa, one particular place of several locations was Angola and he asked its people how they lived. He saw that young kids had to wake up real early before school and walk miles to go get some water and bring it home to drink. Jay-Z could not believe what these young kids had to do every single day.

So Jay-Z decided to walk with them and feel what they had to deal with everyday. To his disbelief, he found out that it was a lot harder than he expected. Jay-Z went to their school and the school was very small. There were two to three kids per desk because of a lack of space. Also, the roof was somewhat collapsed in so when it rains they would get wet and rained on.

Jay-Z said, "As I started looking around and looking at ways I can become helpful, it started with water…….. something as simple as water". He also turned his attention to Americans. "Young people need to know the problem exists."

He said he feels empathy for these people, so he donated money for new toilets and a system where kids sort of ride on a wheel and it would pump water for them in their own community so they did not have to walk miles to get it. Those kids were so grateful for what Jay-Z did for them. Something that can be so simple to us can be totally amazing for someone else. We need more people like Jay Z who, think about others instead of just thinking about themselves.

We need to find it in our hearts to donate money to people who are less fortunate than us so they can get the right education and technology to have the resources that they need.

There are three things I learned:

1. *We also need to conserve water because there are people who do not have near as much as we have. What if we ran out? Think about it. Then, we could have problems – very serious problems.*
2. *We want to help the environment, not destroy it, because if the environment goes, we, the whole of human race, will go as well.*
3. *Access to clean water should be a right, and not a privilege.*

(Continued)

For more information on what we learned in class visit the following Web sites that highlight the Jay Z's "Water for Life" DVD:

• http://unworks.blogspot.com/2007/09/hes-got-99-problems-and-water-crisis-is.html

• http://www.unicef.org/wash/index_36634.html

Video Link:

http://video.google.com/videoplay?docid=441715101567823623&ei=jZWFSouoMoeOrAKQp73vBA&hl=en

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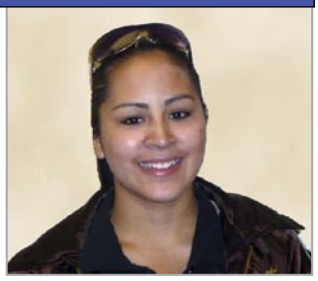
An Open Letter to President Barack Obama



Dear Mr. President,

Noted author Fritjof Capra once said, "The nature of the whole is always different from the mere sum of its parts." I interpret this as saying individual factors that affect the earth may seem small but when you link all the damage we cause, it's a big problem that needs to be taken cared of before there is no Earth, nor beauty to show our future generations.

I am currently a student in Washington state enrolled in a program called Youth Source. This summer, our main focus is caring for the environment, and how this impacts our daily lives. Being a mother to a daughter, it is important for me to now realize to be actively participating in the healing of our dear planet.

I wish to show my daughter and the future generation the importance of being informed about conservation and the critical role of reforestation in rebuilding our world. It is imperative to inform our communities about the importance of recycling and conserving water.

I feel that it is also just as important that our country put a strong effort in helping other countries that are not fortunate enough to have the clean water they need. A good example of this is the documentary from a famous rapper, Jay-Z, who donated money out of his own pocket to provide a water pump for people to access fresh drinking water.

Why can't we do that as a nation and do our part for the greater good of the world?

I want to thank you for the funds that you have provided for the Youth Source Program here in King County, Washington and many others similar programs in the nation so that my generation can be informed about the environmental crises and how even the little things we do can make a big difference.

I think, a good motivation for you, is to give your daughters the chance to enjoy a greener world and not a world full of pollution.

I hope that throughout your term as president, you will do your part as our leader to push our national focused around the preservation of our natural resources, equally for ALL PEOPLE! As you said, change has come, not only in the United States, but it has to be for the whole world for a better tomorrow!

Sincerely yours,

Cindy Zecena medina

CINDY ZECENA, a nineteen year old mother and student

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Experiencing Water Life at Seattle's Aquarium

By Mohamoud Ali, Shaq Polk, Muk de Guzman, Sam Hoard

Water provides life to many organisms. And for us to appreciate these different species of organisms, we went to the Seattle Aquarium. It was a great experience and we had so much fun.

The aquarium is located along the waterfront and it provided us an appreciation and a lot of information about aquatic life. We spent a great deal of time taking notes about the aquarium's aquatic animals and their environment, including biotic and abiotic factors: the living and non-living things that surround and affect aquatic plants and animals, including their habitat. For example, there are plants and animals that live in fresh water, such as lakes and rivers, and there are those that live in salt water, such as the ocean.

We also saw a rockfish that lives in the Pacific Ocean along the coast of Washington state. The fish lived among other sea organisms, such as sea urchins, starfish and corals and sea lilies. These biotic factors affect how the fish survives. The coral provides the fish a place to hide and eat planktons and other little creatures. The starfish and the sea urchins also provide the fish protection. If the other organisms die, the fish will die, too.

The abiotic factors surrounding the fish include the rocks, the sand and the water itself. The water maintains a certain temperature for the fish to keep staying comfortable. The sand and the rocks provide the corals a spot to grow over so that the fish can stay with the corals.

There are many more of these sea creatures that we saw that had different biotic and abiotic factors in their habitats. These factors are very crucial in the life of aquatic animals.

(Continued)

Clams

Sea otter

Coral in main tank of aquarium

Cup coral in main tank of aquarium

Rockfish and anemone

Right now, the earth and its oceans are beginning to warm because of climate change; the gradual warming of the atmosphere. Some of the aquatic creatures are being affected by warming water temperatures. Some of them could die, because even if only one of the biotic factors is affected, all of them could be affected.

We have learned that no creature lives independently of other creatures. They are all connected into one ecological system.

For more information about the Seattle Aquarium visit www.seattleaquarium.org

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Science and Technical Support Section

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Available on the Web at: http://www.kingcounty.gov/environment/wlr/science-section/sci-fyi-newsletter.aspx

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King County's SciFYI
A digest of current natural science issues in King County
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King County
Department of Natural Resources and Parks
Water and Land Resources Division

A Field Study at Shadow Lake Park

By Brandi Martin, Erica Parker, Leanna Lemeke, and Aubrey Burrell

Students removed bull thistle, a weed that blooms from June through September with sharp spines surrounding the flowerheads.

Shadow Lake is located in the Fairwood - Renton area of King County. It is located in a 92-acre reserve for the preservation of forest land. We arrived for our field study and we were sent out into the woods to remove holly trees. We had all kinds of equipment to use and it took a lot of strength to haul these plants away.

In our native environment, holly trees are considered an invasive tree species and if we did not go in and do what we were supposed to do the holly trees could take over and smother the native plants. In a way, we were sent out there on a mission to safeguard nature's way of healthy growing.

The experience helped us understand more about our study of environmental science. Actually going out to the forest and doing hands-on work made our group realize that taking care of the environment is hard work……..no doubt!

We are also now aware of what plants are considered invasive, and what are native. Otherwise, if we left the forest as it was, the native plants would have all died out and it would have been now a forest of just holly trees.

It was a great experience working with professional foresters. Not only did they teach us the proper techniques of pulling invasive trees and plants, they also provided us the history of the forest and that "little" stuff that we do, can have a great impact in the greater picture of a better earth.

For more information on Bull Thistle and other weeds, check King county's noxious wee control program online at www.kingcounty.gov/weeds

About the Instructor
Rogelio 'Roger' Rigor

A teacher with the Seattle School District, Roger has been with the Youth Source Summer project for a second consecutive year. He has been a teacher for the past 15 years with the last 12 years as a Math/Science teacher at the Seattle Public Schools' Middle College High School (MCHS). Starting off his first year at South Seattle Community College MCHS, he spent the next 11 years at Ida B. Wells School for social justice, the University of Washington MCHS site. He will be returning to South Seattle Community College MCHS site this coming fall. Roger was born and raised in the Philippines but graduated at Western Washington University, and took his masters in Math Education at the University of Washington.

About King County's SciFYI

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